

RESPONSE UNDER 37 C.F.R. § 1.111
U.S. APP. NO. 10/824,648

REMARKS

Summary of the Office Action

Claims 1-19 are pending in the application.

Claims 15-19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Beeson et al (USP 5,396,350).

Claims 1-14 are rejected under 35 U.S.C. § 103 as being unpatentable over Kraft (US Publication No. 2003/0147259) in view of Umemoto et al (USP 6,616,289).

Applicant respectfully traverses these rejections.

Analysis of the Claim Rejections

In rejecting claims 15-19 under 35 U.S.C. § 102(b) as being anticipated by Beeson et al, the Examiner cites portions of Beeson et al that allegedly disclose each of the claimed elements. Applicant respectfully submits, however, that Beeson et al does not disclose at least the claimed optical deflector.

In more detail, claim 15 requires that “a cross-section of the optical deflector in parallel to the light emitting surface being in the shape of a trapezoid whose bottom side is a surface opposite to the light incident surface, the trapezoid-shaped cross-section being extended in a direction perpendicular to the light emitting surface.” The Examiner refers to element 36 of Beeson et al as satisfying these conditions. In particular, the Examiner describes element 36 as

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“an optical deflector 36 protruding from the light emitting surface, a cross section of the optical deflector in parallel to the light emitting surface being in the shape of a trapezoid whose bottom is a surface opposite to the light incident surface, the trapezoid shaped cross-section being extended in a direction perpendicular to the light emitting surface.”

Applicant submits, however, that the element 36 of Beeson et al does not have a cross section in parallel to the light emitting surface being in the shape of a trapezoid, as required by claim 15. Rather, as shown in Fig. 2 of Beeson et al, the trapezoidal cross-section is perpendicular to the light emitting surface. There is no teaching that the cross section is parallel to the light emitting surface is in the shape of a trapezoid. One advantage of the claimed orientation of the trapezoidal shape of the optical deflector is that as the distance from the light incident surface increases, the direction of light reflected on the side surfaces of the optical deflector is reduced (see, e.g., the present specification at page 10, lines 1-4).

Applicant respectfully traverses the rejection of claim 15, and its dependent claims 16-19, at least because of the above deficiency of Beeson et al.

Regarding the rejection of claims 1-14 under 35 U.S.C. § 103 as being unpatentable over Kraft in view of Umemoto et al, the Examiner cites Kraft as teaching all the elements of claim 1, except for using a rod-shaped light source. The Examiner relies, however, on Umemoto et al as teaching this feature and concludes that it would have been obvious to combine the rod-shaped light of Umemoto et al with the device of Kraft, “since the use of point source lights and rod/tube lights are equivalents in the art and the use of the rod-shaped source would reduce the

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number of parts in the device.” Applicant submits, however, that the Examiner’s proposed combination is improper because Kraft teaches away from this combination.

In more detail, paragraph 0038 of Kraft states: “Light flux enters the tapered light guide area from fiber optics or a light pipe and as such is highly organized as a flux rather than a wide spread beam. The tapered light guide provides an area where the light flux can be evenly averaged and distributed across the proximal end of the emitting area of the light emitting panel by internal reflection.” Thus, Kraft teaches away from using a rod-shaped light.

At least for this reason, Applicant submits that independent claims 1 and 10, as well as their dependent claims, are patentable over the applied references.

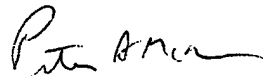
Further, Kraft(US 2003/0147259) does not teach the polyhedral optical deflector of claim 1. Referring to paragraph [0034] – [0039] of Kraft, tetrahedron grooves, referred to as the polyhedral optical deflector by the Examiner, reflect light traveling through the inside of a PMMA panel toward the light emitting surface of the PMMA panel. To compensate for the light intensity loss as the light travels, the tetrahedron grooves have an increased surface area as they lay more distal to the light flux injection area. Therefore, the tetrahedron grooves correspond to an optical path changing unit 130 of the present invention rather than the polyhedral optical deflector of Claim 1. Umemoto fails to make up for this deficiency. At least because the applied references commonly fail to teach or suggest the claimed polyhedral optical deflector, claim 1, and its dependent claims, are patentable over the applied references.

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In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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